VPDES PERMIT FACT SHEET

This document gives pertinent information concerning the reissuance of the VPDES permit listed below. This permit is being processed as a minor, industrial permit. The effluent limitations contained in this permit will maintain the Water Quality Standards of 9 VAC 25-260 et seq. The industrial discharge consists of treated wastewater resulting from the operations at a poultry processing facility (slaughter, meat cut preparations, packaging for human consumption and poultry processing for pet food), facility cleaning operations, and facility domestic sanitary waste. This permit action consists of updating the facility name, evaluating permit limitations and monitoring conditions, adding a stormwater outfall, and updating permit boilerplate.

1. **Owner Name**: Tyson Farms, Inc.
Owner Mailing Address: 13264 Mountain Road
Glen Allen, VA 23059

Facility Name: Tyson Farms, Inc.
Location: 13264 Mountain Road
Glen Allen, VA 23059

SIC Code: 2015 – Poultry Slaughtering and Processing

2. **Permit Number**: VA0004031
Existing Permit Expiration Date: November 13, 2010

3. **Owner Contact**: Tim Lockhart, Complex Environmental Manager
Telephone Number: 804-798-8357, ext. 305
Email Address: tim.lockhart@tyson.com

4. **Application Administratively Complete Date**: August 10, 2011
Application Technically Complete Date: August 10, 2011
Permit Drafted By: Janine Howard Date: 4/21/2014
Laura Galli Date: 6/22/2015
DEQ Regional Office: Piedmont
Reviewed By: Emilee Adamson Date: 7/7/2014, 6/29/2015
Public Comment Period Dates: November 25 to December 28, 2015

5. **Receiving Stream Name**: Chickahominy River, UT
River Mile: Outfall 001 2-XDD001.12; Outfall 002 2-XDD000.95; Outfall 003 2-XDD001.13
Basin: James River
Subbasin: James River (Lower)
Section: 4 (as per 9VAC25-260-410)
Class: III (free flowing or nontidal)
Special Standards: m (Chickahominy watershed)

7-Day, 10-Year Low Flow: 0.0 MGD	7-Day, 10-Year High Flow: 0.0 MGD
1-Day, 10-Year Low Flow: 0.0 MGD	1-Day, 10-Year High Flow: 0.0 MGD
30-Day, 5-Year Low Flow: 0.0 MGD	30-Day, 10-year High Flow: 0.0 MGD
30-Day, 10-year Low Flow: 0.0 MGD	Harmonic Mean Flow: 0.0 MGD
Tidal? No	On 303(d) list? Yes

Attachment A – Flow Frequency Memo and Fact Sheets for 303(d) Waters

6. Operator License Requirements: The Virginia Department of Professional and Occupational Regulation requires licensed operators for wastewater works. A wastewater works using biological treatment methods with a design hydraulic capacity greater than 0.5 MGD but less than 5.0 MGD requires a Class II licensed operator (18VAC160-20-130.C & 9VAC25-31-200.C).

7. **Reliability Class**: N/A for industrial discharges.

8. **Permit Characterization**:
(X) Private ( ) Federal ( ) State ( ) POTW ( ) PVOTW

( ) Possible Interstate Effect ( ) Interim Limits in Other Document

9. **Discharge Description**:

OUTFALL NUMBER	DISCHARGE SOURCE	TREATMENT	FLOW
001	Wastewater Treatment Plant discharge from: operations at poultry processing facility (slaughter, meat cut preparations, packaging for human consumption and poultry processing for pet food), facility cleaning operations, and facility domestic sanitary waste (≤5% of flow), and stormwater runoff.	Screening, acidulation, dissolved air floatation, and flow equalization units precede biological treatment. An activated sludge basin with suspended growth nitrification for ammonia removal, secondary clarification, chemical precipitation, tertiary sand filters, and UV disinfection are used to treat the wastewater prior to final discharge. The UV disinfection system with emergency chlorination/dechlorination back-up became operational on 10/26/2010.	1.25 MGD Design Flow
002	Stormwater runoff from drainage areas 4 and 5.	None.	Variable
003	Stormwater flow from BMP-4, BMP-14, and drainage area 1.	Bioretention basin.	Variable

See **Attachment J** for Drainage Areas description.

Tyson Farms, Inc. – Glen Allen Complex is a poultry processing plant. Process wastewater and stormwater (40% of site runoff) is treated by the onsite wastewater treatment facility and discharged via Outfall 001. Stormwater runoff from the south-western part of the plant, where the main plant refrigeration shipping and labeling (drainage area 4), and the service center/fueling bay/wash bay and pump house (drainage area 5) are located, is captured at Outfall 002 via a conveyance channel before it enters the receiving stream. With this permit reissuance, a new stormwater outfall 003 is being added to capture stormwater runoff deriving from drainage area 1, bioretention basin BMP-4, and BMP-14. The bioretention basin was installed in 2010 specifically to collect the first inch of rainfall in the area where the live bird receiving takes place. Its installation was part of a Supplemental Environmental Project required by the 2009 Consent Order. The location of Outfall 003 will be at the drop inlet located just south of the roadway located south of BMP-14. At this location, the compliance point for Outfall 003 is prior to the point at which the wastewater treatment plant effluent and the stormwater mix. Stormwater runoff discharging through Outfall 003 ultimately converges with the main channel that carries effluent from the wastewater treatment plant off site. **See Attachment J** for details on drainage areas and outfall location maps.

Offal, blood and feathers from poultry processing are sent to an offsite rendering facility. Solid wastes from the wastewater treatment plant are trucked off-site.

Attachment B – Site Diagrams and Location Map

10. **Sewage Sludge Use or Disposal**: Sludge (wet and pressed) generated in the wastewater treatment process (≤5% flow from domestic connections and ≥95% flow from industrial sources) is sent off-site. Wet sludge (removed from the DAF with coagulants) is hauled to a rendering facility (Valley Protein, Inc.) in Linville, VA. Pressed sludge (waste activated sludge) is sent to Synagro, Inc.

11. **Discharge(s) Location Description**: **Attachment B** – Glen Allen, VA topographic map (127A).

12. **Material Storage**: All materials (including anhydrous ammonia, aluminum sulfate, calcium hydroxide, chlorine gas, magnesium hydroxide, sulfuric acid, propane, various sanitation/cleaning chemicals) the facility uses are stored, loaded and unloaded in covered areas. Diesel contained at the facility within four above ground storage tanks (AST) (storage capacity of 3242, 3242,3242, 3029 gallons) and one underground storage tank (UST) (storage capacity of 15,000 gallons) are registered and regulated by the DEQ Petroleum Storage Tanks program.

13. **Ambient Water Quality Information**: The receiving stream at the point of discharge is considered a dry ditch with a 1Q10 and a 7Q10 of 0 MGD, thus theoretical low flows are comprised entirely of effluent. Under these low flow conditions, ambient data are not applicable for limitation development; instead, effluent data from the permit application and representative Discharge Monitoring Reports (DMRs) were used to analyze permit limitations. See **Attachment A** for the Flow Frequency Determination provided by Jennifer V. Palmore, Senior Environmental Planner, of the DEQ PRO Planning Department.

14. **Antidegradation Review & Comments**:

Tier: 1 _X____ 2_____ 3_____
The State Water Control Board's Water Quality Standards includes an antidegradation policy (9 VAC 25-260-30). All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

The antidegradation review begins with a Tier determination. Due to its intermittent nature (no sustainable or measurable flow), the receiving stream is considered a Tier 1 waterbody.

15. **Site Inspection**: Date: August 30, 2013
Performed by: Shawn Weimer, PRO

Attachment C – Site inspection Report

16. **Effluent Screening & Limitation Development**:

a. Process Wastewater Discharge (Outfall 001):

Limitations reflect the application of Virginia Water Quality Standards and Criteria (VA WQS), 9VAC25-260, including the Chickahominy watershed limitations applicable to process wastewater discharges, 9VAC25-260-310 m; Federal Effluent Limitation Guidelines (FELGs) for Poultry First Processing facilities, 40 CFR 423 Subpart K (Best Practicable Control Technology currently available (BPT) and Best Available Technology economically achievable (BAT) requirements) (see **Attachment D** for the FELGs); nutrient regulations and guidance; and best professional judgment.

A limitation evaluation for the application of the VA WQS is performed in order to identify pollutants that may have reasonable potential to cause or contribute to a violation of water quality standards. This begins with a wasteload allocation analysis using MSTRANTI version 2b (a DEQ excel spreadsheet). Acute and chronic waste load allocations are calculated from criteria for surface water given in the VA Water Quality Standards (9VAC 25-260-140). Statistically derived permit limits are then obtained by inputting these acute and chronic waste load allocations along with reported data or default data values (see below) and required quantification limits into the DEQ statistical program (STATS.exe). Monitoring frequencies used in STATS.exe are those required in the current permit reissuance. The constituents identified in the application that require a reasonable potential analysis are total residual chlorine, chlorides, cadmium, total recoverable selenium, hydrogen sulfide, zinc, and ammonia. Radionuclides were also reported in measureable concentrations and are addressed in the Human Health Evaluation below.

See **Attachment E** for facility effluent data submitted with and as part of the application and reported on Discharge Monitoring Reports (DMRs).

See **Attachment F for** MSTRANTI printouts with WLAs and applicable STATS.exe analyses.

Table 1. Basis for Effluent Limitations: Outfalls 001- Process Water

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITS			MONITORING REQUIREMENTS	
		MONTHLY AVG	DAILY MIN	DAILY MAX	FREQ	SAMPLE TYPE
001 Flow (MG)	NA	NL	NA	NL	Continuous	TIRE
002 pH (SU)	2	NA	6.0	9.0	1 per Day	Grab
003 BOD_5 (mg/L)	3	6.0	NA	8.0*	1 per Month	24HC
003 BOD_5 (kg/D)	3	28	NA	38	1 per Month	24HC
004 TSS (mg/L)	3	5.0	NA	7.5*	1 per Week	24HC
004 TSS (kg/D)	3	24	NA	35	1 per Week	24HC
006 Fecal coliform (MPN/100 mL)	4	NL	NA	400	1 per 6 Months	Grab
120 *E. coli* (MPN/100mL)	2, 7	126 MPN/ 100 mL (geometric mean)	NA	NA	1 per Week	Grab
007 DO (mg/L)	2	NA	5.0	NA	3 per Week	Grab
012 Total Phosphorus (mg/L)	3	0.3	NA	0.5	1 per 3 Months	24HC
794 Total Phosphorus, Annual Load (kg/year)	8	NA	NA	185	1 per Year	Calculated
794 Total Phosphorus, Calendar Year Average (mg/L)	5, 6	0.1	NA	NA	1 per Year	Calculated
806 Total Phosphorus, Year-to-Date (mg/L)	5	NL	NA	NA	1 per Month	Calculated
792 Total Nitrogen, Calendar Year Average (mg/L)	5, 6	6.0	NA	NA	1 per Year	Calculated
805 Total Nitrogen – Year-to-Date (mg/L)	5	NL	NA	NA	1 per Month	Calculated
039 Ammonia-N (mg/L)	3, 4	2.0	NA	8.0	1 per 2 Months	24HC
039 Ammonia-N (kg/D)	3,4	9.5	NA	38	1 per 2 Months	24HC
071 Settleable Solids (ml/L)	3	0.1	NA	NL	1 per Month	Grab
196 Zinc, Total Recoverable (μg/L)	2	190	NA	190	1 per 6 Months	Grab
801 Oil & Grease (as HEM) (mg/L)	4	8.0	NA	14	1 per 2 Months	Grab
801 Oil & Grease (as HEM) (kg/D)	4	38	NA	66	1 per 2 Months	Grab
145 Chlorides (mg/L)	1	NL	NA	NL	1 per Month	Grab
720 Toxicity, Chronic (TU_C)[*C.dubia*] (Interim)	1	NA	NA	NL	1 per 3 Months	24HC
720 Toxicity, Chronic (TU_C)[*C.dubia*] (Final)	2	NA	NA	1.38	1 per 3 Months	24HC

NA = Not applicable
NL = No limitation
(1) Permit writer judgment based on Water Quality Standards

(2) Water Quality Standards (9VAC 25-260 effective 1/6/11) or Water Quality Based Effluent Limitations
(3) Chickahominy Special Standards, 9VAC25-260-310 m
(4) Federal Effluent Limitations Guidelines, 40 CFR 423.112 (Subpart K- Poultry First Processing)
(5) Nutrient Regulations and DEQ Guidance (GM07-2008, Amendment 2)
(6) Technology-based limits
(7) The Chickahominy River and Tributaries Bacterial TMDL (EPA approved 9/19/2012, DEQ approved 3/25/2013)
(8) The Unnamed Tributary to the Chickahominy River TMDL for a benthic impairment (EPA approved 8/5/2004, DEQ approved 3/15/2005)

*No more than 5% of the individual samples collected during the reporting month shall exceed the daily maximum effluent limit.

See **Attachment L** for monitoring reductions calculations and rationales.

pH: A pH limitation of 6.0-9.0 Standard Units is assigned to all Class III waters in accordance with VA Water Quality Standards, 9VAC 25-260-50.

Biological Oxygen Demand (BOD_5): The BOD_5 limitation is determined by the Chickahominy special standard (9VAC25-260-310 m). The FELGs also address BOD_5 (16 mg/L monthly average and 26 mg/L daily max), however the Chickahominy standard is more stringent.

Total Suspended Solids (TSS): The TSS limitation is determined by the Chickahominy special standard (9VAC25-260-310 m). The FELGs also address TSS (20 mg/L monthly average and 30 mg/L daily max), however the Chickahominy standard is more stringent.

The Chesapeake Bay TMDL allocates loads for total suspended solids to protect the dissolved oxygen and submerged aquatic vegetation acreage criteria in the Chesapeake Bay and its tidal tributaries. The TSS allocations are considered aggregated and facilities with technology-based TSS limits are considered to be in conformance with the TMDL. This facility is subject to TSS limitations that are more stringent than the technology-based limitations required by the FELG, therefore the permit is in conformance with the TMDL requirement for TSS.

Settleable Solids: The settleable solids limitation is determined by the Chickahominy special standard (9VAC25-260-310 m).

Fecal Coliform: The fecal coliform limitation is required by the Federal Effluent Guidelines for Meat and Poultry Products Source Category (40 CFR 423). Specifically, subpart K (Poultry First Processing) applies to this facility and section 432.112 mandates that a maximum count 400 MPN per 100mL may be discharged at any time.

***E. coli*:** The Chickahominy River and Tributaries Bacterial TMDL was approved by the EPA on 9/19/2012 and by the SWCB on 3/25/2013. Tyson received an *E. coli* wasteload allocation of 2.18E+12 cfu/year. An *E. coli* limitation is required for the permit to be in compliance with the TMDL.

In addition, in late 2010 the facility began using a UV disinfection system, discontinuing the use of chlorine for disinfection. Per the VDPES Permit Manual Section MN-2, a facility that utilizes alternate disinfection (not chlorination) with a design flow of 1.0 - 2.0 MGD requires bacteria monitoring five days per week between the hours of 10am and 4pm.

Dissolved Oxygen (DO): The dissolved oxygen limitation is applied per section 9VAC25-260-185 of the state Water Quality Standards. The facility discharges to an area that has the Migratory Fish Spawning and Nursery Designated Use. This limitation is the same as that in the 2005 permit.

Ammonia-N: The Chickahominy Special Standards (9VAC25-260-310 m) require that ammonia-N not exceed a monthly average of 2.0 mg/L. The Federal Effluent Limitations Guidelines (FELG), 40 CFR 423.112 (Subpart K- Poultry First Processing) that apply to this facility also address ammonia –N, however the Chickahominy standard is more stringent than the 4.0 mg/L monthly average limitation

required by the FELG. The FELG also requires a 8.0 mg/L daily maximum limitation. A reasonable potential analysis for this parameter resulted in no limitation necessary to protect water quality. For this reason the Chickahominy monthly average of 2.0 mg/L and the FELG daily maximum of 8.0 mg/L are applied directly in the permit. These concentration limitations are the same as those in the 2005 permit.

The Chickahominy Special Standard and the FELG are both expressed to two significant figures. Since these documents determine the limitations, the load limits are also expressed to two significant figures.

Zinc: The permittee reported a dissolved zinc value less than the quantification level for the test method on the 2010 application. A reasonable potential analysis was performed using the existing limit for the data input and yielded the need for a limit based on acute toxicity. The permittee requested to be granted additional sampling analysis for this parameter in order to provide sampling results that are better representative of the current process discharge, and to be able to meet the Agency's required QLs. Two sets of sampling results were provided on March 25, 2015, where zinc was analyzed at a QL (0.5 ug/L) less than the Agency's QL (3.6 ug/L) for this parameter. The new data was used in the reasonable potential analysis; the results show that no limit is required for this parameter (see **Attachment F**). However, because zinc was limited in the 2005 permit, the limitation is carried forward to the 2016 permit to be in accordance with antibacksliding regulation.

Oil & Grease (O & G): Oil and grease is limited per the Federal Effluent Limitations Guidelines, 40 CFR 423.112 (Subpart K- Poultry First Processing) that apply to this facility.

Chlorides: The reasonable potential analysis indicated the need for a water quality based effluent (336 mg/L monthly average) limitation to protect against chronic toxicity. The analysis was run using chloride concentrations of 168.6 mg/L as reported on the 2010 application, and 150 mg/L and 130 mg/L as provided in the laboratory reports dated March 2015. While the reasonable potential analysis triggers a limitation, DEQ recognizes that a limitation may not be necessary with a larger data set. The existing data is well below the WLA. Consequently, monthly monitoring will be required over the course of the permit term and reasonable potential will be evaluated at the next reissuance.

Cadmium: The permittee reported an effluent cadmium concentration of less than 3.0 µg/L on the 2010 reissuance application. The agency accepted quantification limit for cadmium is 0.3 µg/L, therefore a reasonable potential analysis was performed with cadmium considered present at a concentration equal to the quantification level that the lab reported (3.0 µg/L). The reasonable potential analysis yielded a need for a 5.0 µg/L cadmium limitation based on chronic toxicity. Two additional sets of sampling results were provided on March 25, 2015, where cadmium was analyzed at a QL (0.2 ug/L) less than the Agency's QL (0.3 ug/L) for this parameter. Both results are below the QLs and therefore this parameter is considered absent for the purpose of this evaluation.

Selenium: A selenium concentration of 89 µg/L was reported on the application in addition to a result of less than the quantification level of 2.0 µg/L. A reasonable potential analysis was performed using both the censored and uncensored data in accordance with Central Office guidance (A. Brockenbrough email, 1/29/2003) provided in Attachment F. The analysis resulted in the need for a limitation of 7.3 µg/L (rounded per GM 06-2016) to be protective of chronic toxicity. Two additional sets of sampling results were provided on March 25, 2015, where selenium was analyzed at a QL (0.5 ug/L) less than the Agency's QL (2.0 ug/L) for this parameter. The new data was used in the reasonable potential analysis; the results show that no limit is required for this parameter (see **Attachment F**).

Toxicity: An in depth review of toxicity data was performed and is outlined in **Attachment H** – Whole Effluent Toxicity Evaluation. The need for a permit limit was identified and as such a new chronic toxicity limit of 1.12 TUc is applied in this permit. A four year schedule of compliance is afforded. See permit Part I.D. for details. Interim monitoring is required before the limitation takes effect four years following the effective date of the permit. During the 4-year schedule of compliance, the permit may be modified or revoked and reissued to include a revised WET limit, or to re-evaluate the need for a WET limit based on the toxicity data submitted.

Nutrients:

Nutrient loads to the Chesapeake Bay watershed are now limited under the General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia (9VAC 25-820). The facility was issued coverage under this general permit (VAN040089) effective January 1, 2012. According to 9 VAC 25-820-30.A, the general permit shall control in lieu of conflicting or duplicative mass loading effluent limitations, monitoring or reporting requirements for total nitrogen and total phosphorus loads contained in individual VPDES permits for facilities covered by this general permit.

Per 9VAC 25-40-70 "Strategy for Chesapeake Bay Watershed," the board shall include technology-based effluent concentration limitations in the individual permit for any facility that has installed technology for nutrient control whether by construction, expansion, or upgrade. These limitations shall be based on the technology installed by the facility and shall be expressed as annual average concentrations.

The Chesapeake Bay TMDL, administered via the General Permit (VAN040089) allots Tyson Foods-Glen Allen a TN wasteload allocation of 19,552 pounds per year and a TP wasteload allocation of 409 pounds per year. In the fall of 2008 (approved summer 2007) a tertiary filtration system was added to the treatment plant to address the Chesapeake Bay TMDL TP load allocation (409 pounds per year) which converts to an annual average concentration of 0.1 mg/L at the design flow of 1.07 MGD listed in the Registration List for the General Permit 9VAC 25-820-70 (the conversion is made using Equation 1 below). Per Section V. Expected Final Effluent Quality of the "Final Design Summary of Wastewater Treatment System Upgrade" document received by the department on 19 April 2007, the facility is designed to remove TP such that the final effluent shall have a concentration of no more than 0.10 mg/L. DEQ received a letter dated November 6, 2008 from Tyson, in which the owner certifies that the tertiary filter was installed in accordance with the design specifications previously submitted to DEQ. As such, a 0.1 mg/L TP technology-based concentration limit is applied as a calendar year average limitation in the 2016 permit per GM07-2008 Amendment 2. Monthly year-to-date monitoring is also required. The previously included TP load limits for parameter number 012 (TP) have been removed from the permit as these loads are now controlled by the General Permit (VAN040089).

The total phosphorus load generated by this facility is additionally addressed in the TMDL for the "Unnamed Tributary to the Chickahominy River" designed to address a benthic impairment (EPA approved 8/5/2004, DEQ approved 3/15/2005). The TMDL allocates Tyson a load 409.35 pounds per year of total phosphorus. In order for the individual permit to be in conformance with the TMDL a yearly maximum TP load must remain in the permit. The 2005 permit addressed the TMDL via a 186 kg/calendar year max TP load limitation (parameter code 794).This limit is carried forward in the 2016 permit.

Load (lbs/yr) = concentration (mg/L) X Flow (MGD) X 8.3438 (lbs/MG/mg/L) X 365 days/yr	Eqn (1)

The wastewater treatment plant was also upgraded to provide higher efficiency total nitrogen removal to comply with the 19,552 pound per year nitrogen wasteload allocation listed in the General Permit (VAN040089). The former single stage activated sludge treatment plant was upgraded to a four stage Bardenpho biological nutrient removal (BNR) process followed by the tertiary filtration (discussed above). The facility's "Final Design Summary of Wastewater Treatment System Upgrade for High Efficiency Nitrogen Removal" dated June 18, 2008 was approved by DEQ on October 27, 2008. The BNR upgrade was completed in 2011. The BNR system was designed to remove TN to a concentration of 6.0 mg/L, and per the October 2008 approval letter this technology-based concentration limit is applied in the 2016 permit as a calendar year average limitation per GM07-2008 Amendment 2. Monthly year-to-date monitoring is also required. All previously included TN load limits have been removed from the permit as loads are now controlled by the General Permit (VAN040089).

The FELG for this facility also addresses Total Nitrogen (40 CFR 432.113) in the form of Best Available Technology (BAT). BAT applies to this facility because it slaughters more than 100 million pounds per year (max average 30-day production level of 16.33 million pounds per month or 195.6 million pounds

per year). The TN BAT limitations are 147 mg/L daily maximum and 103 mg/L monthly average. These limitations were directly applied in the 2005 permit; however, with the BNR upgrade the facility is capable of achieving far lower TN concentrations. Since the technology-based limitation of 6.0 mg/L monthly average is applied in this permit and is considerably more stringent than the FELG, the FELG limitation of 103 mg/L monthly average is no longer needed. The technology-based limit is protective of the FELG. Antibacksliding does not prevent the removal of this limitation because the new technology-based limit is more stringent. In addition, TN loads are now administered by General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Watershed in Virginia (9VAC 25-820). Based on the monthly average concentration limit, the max monthly average load that the facility may produce is 24 kg/d, far lower than the 487 kg/d monthly average load that was formerly limited by the permit per the FELG.

In addition to the General Permit and TMDL for the unnamed tributary to the Chickahominy, the facility is also subject to the Chickahonimy special standards (9VAC25-260-310 m) which state that Tyson Farms, Inc. shall meet a 0.30 mg/L monthly average and 0.50 mg/L daily maximum TP limitation. This limitation was applied in both the 1999 and 2005 permits and is carried forward into the 2016 permit.

Total Residual Chlorine (TRC): Tyson installed ultraviolet (UV) disinfection equipment at the plant in late 2010. This disinfection system replaced chlorination as the mode of effluent disinfection, although the facility retained the infrastructure to chlorinate as a back-up, should the UV disinfection system fail at any time. Based on application Form 2C, TRC is believed absent in the effluent and was reported as <QL result on Attachment A. Since the facility is no longer using chlorine to disinfect its effluent and the parameter is believed absent in the wastewater, a TRC limit in Part I.A. is no longer needed. Anti-backsliding does not prevent the removal of this limit because material and substantial alterations to the facility were made. Since the facility has discontinued use of chlorination and installed a UV treatment system for the purpose of disinfection, chlorine is no longer purposefully introduced into the waste stream.

However, the facility retained the infrastructure for chlorination and dechlorination as a back-up to the UV disinfection system. Therefore, Part I.C.14 Additional Chlorine Limitations and Monitoring Requirements have been added to the permit. This special condition outlines effluent limitations and sampling frequencies that must be met should the facility switch to chlorination for any reason. To generate the limit a reasonable potential analysis was performed using a default input of 20,000 µg/L (refer to **Attachment F)**.

Hydrogen Sulfide: The 2010 application contained a concentration of 400 ug/L of hydrogen sulfide; this concentration was utilized in the reasonable potential analysis for this parameter. The analysis shows that a limit based on chronic toxicity is required (see **Attachment F**). In an effort to demonstrate that the detections were erroneous, the permittee submitted additional total sulfide analyses, in March 2015; showing non-detect concentrations for total sulfide In addition, in a letter dated July 20, 2015 (**Attachment F**), the permittee explained that the original, 2010 hydrogen sulfides detections derived from errors during the sampling process, and that the subsequent sampling results were conducted following applicable protocols. Lastly, the facility confirmed that the current wastewater process, chemical program, waste activated sludge handling, and equipment and management have significantly changed since 2010, justifying the absence of hydrogen sulfide at the plant. Hence, no further sampling and no Hydrogen Sulfide Minimization Plan will be required in the 2016 permit.

Human Health Evaluation: Effluent cadmium, chloride, selenium, and zinc concentrations, as well as radionuclides, are displayed below in comparison to human health standards for illustrative purposes. Public water supply (PWS) human health standards do not directly apply to this facility because it does not discharge to a public water supply, however if it did, the discharge would not pose a threat to human health as shown below. Ammonia, TRC, and hydrogen sulfide are not displayed as a public health standard is not established for these parameters.

Human Health Evaluation

Parameter	Human Health Standard (PWS)	$WLA_{HH, PWS}$	Effluent Concentration	Exceed Human Health WLA?
Cadmium	5.0 µg/L	5.0 µg/L	< 3 µg/L	NO
Chlorides	250 mg/L	250 mg/L	168.6 mg/L	NO
Selenium, TR	170 µg/L	170µg/L	< 2 µg/L, 89 µg/L	NO
Zinc	7,400 µg/L	7,400 µg/L	190 µg/L	NO

Human Health Evaluation for radionuclides

Parameter	Human Health Standard	$WLA_{HH, PWS}$	Effluent Concentration	Exceed Human Health Standard?
Beta Particle & Photon Activity	4 mrem/yr	4 mrem/yr	46.3 +/- 1.7 pCi/L *	NO (see discussion below)
Uranium	30 µg/L	30 µg/L	0.00 +/- 0.00 pCi/L	NO
Gross Alpha	15 pCi/L	15 pCi/L	1.3 +/- 1.3 pCi/L	NO
Combined Radium 226 & 228	5 pCi/L	5 pCi/L	0.20 +/- 0.52 pCi/L	NO

* Note: See discussion below regarding unit conversions.

The permittee reported a detectable concentration (46.3 +/- 1.7 pCi/L) for Beta Particle & Photon Activity. It is noted that the Beta Particle & Photon Activity data reported on the application form is expressed in units of concentration (pCi/L) whereas the human health (PWS) criterion, 4 mrem/yr, is expressed in units of exposure. Virginia's Waterworks Regulations, 12VAC5-590-10 et seq., establish a primary maximum contaminant level (PMCL) of 4 mrem/yr for Beta Particle & Photon Activity. The Waterworks Regulations also state, "When the detected level of beta/photon emitters has been reported in units of pCi/L and does not exceed 50 pCi/L, the [consumer confidence] report may list the PMCL as 50 pCi/L. EPA considers 50 pCi/L to be the level of concern for beta particles." Since the reported Beta Particle & Photon Activity data is in compliance with the Waterworks Regulations (below 50pCi/L), these radionuclides are not believed to be present at levels that pose a human health risk.

The application reported uranium in terms of activity, pCi/L, whereas the standard is in terms of a mass-based concentration, µg/L. EPA has suggested conversion factors for activity to mass ranging from 0.67 to 1.5 pCi/µg (USEPA 2000. National Primary Drinking Water Regulations; Final Rule 65 FR 236; December 7, 2000.). The uranium value reported was 0.00 +/- 0.00 pCi/L, which converts to 0 µg/L therefore there is no human health concern with regard to uranium.

As indicated in the table and discussion above, the radionuclides do not present a reasonable potential to cause or contribute to a water quality standard violation or present a human health concern.

b. Stormwater (Outfall 002 and 003):

Stormwater flow from drainage areas 4 and 5 discharges via Outfall 002 into a conveyance channel at the southern border of the property, where it then enters the receiving stream. Stormwater from drainage area 1, BMP4 and BMP-14 is captured at Outfall 003 before it enters the main conveyance channel and it mixes with the treated process wastewater. See **Attachment J** for the Stormwater Flow Evaluation Report and stormwater drainage maps for further details.

Guidance Memo 96-001 recommends that chemical-specific water quality-based limits not be placed on stormwater outfalls at this time because the methodology for developing limits and the proper method of sampling is still a concern and under review/reevaluation by EPA. Therefore, in lieu of limitations, pollutants are assessed against screening criteria developed solely to identify those pollutants that should be given special emphasis during development and assessment of the Stormwater Pollution Prevention Plan (SWPPP). Exceptions would be where a VPDES permit for a stormwater discharge has been issued that includes effluent limitations (backsliding must be considered before these limitations can be modified)

and where there are reliable data, obtained using sound, scientifically defensible procedures, which provide the justification and defense for an effluent limitation.

Each screening criterion is established as the most stringent of either (1) two times the applicable pollutant's acute criterion, (2) the pollutants wasteload allocation, on the basis of the discharge going to a large receiving stream and utilizing conservative assumptions (i.e., Tier 2) or, where applicable, (3) the pollutant's benchmark monitoring concentration as contained in DEQ's VPDES general permit for stormwater associated with industrial activity. Any stormwater outfall effluent data submitted by the permittee that contained pollutants above the established screening criteria triggered the need for monitoring of that specific pollutant in Part I A of the permit for that outfall. The screening criteria are then utilized in the permit as a comparative value.

Parameters identified above the screening value are required by the permit to undergo a stormwater management evaluation, to be monitored more frequently (quarterly) and potentially trigger a requirement for annual Whole Effluent Toxicity Testing. Benchmark values for the evaluated parameters are derived from those included for various industrial sectors in the Industrial Stormwater General Permit (VAR05) and may be helpful in identifying potential elevated pollutants, particularly when a screening value is not available. The maximum reported stormwater value (drawn from Form 2F and DMR data 2010 – 2014, see **Attachment K**) is utilized for the stormwater evaluation. The data and screening criteria (if applicable) are shown below:

Table 2. Stormwater screening results for Outfall 002

Parameter	Max Value (Form 2F or DMR data)	Screening Value*	Benchmark Value	Exceeds Screening Value?	Exceeds Benchmark Value?
pH (min, max)	6.7 ,7.3 SU	6.0-9.0 SU	6.0-9.0 SU	No	No
BOD_5	18.9 mg/L	NA	30 mg/L	NA	No
TSS	**228 mg/L**	NA	100 mg/L	NA	**Yes**
Fecal coliform	**1600 N/cmL**	28 N/cmL (two times the standard for shellfish waters)	NA	**Yes**	NA
Total Phosphorus	0.48 mg/L	NA	2.0 mg/L	NA	No
Ammonia-Nitrogen	1.04 mg/L	22.8 mg/L (based on max pH of 7.6 SU and trout present)	2.14	No	No
Oil & Grease	7.5 mg/L	NA	NA	NA	NA
Total Nitrogen	**39.70 mg/L**	NA	2.2 mg/L	NA	**Yes**
Chemical Oxygen Demand	88 mg/L	NA	120 mg/L	NA	No
TRC	< 10 µg/L	38 µg/L	NA	No	NA
TKN	**2.45 mg/L**	NA	1.5 mg/L	NA	**Yes**
Dissolved Oxygen	6.03 mg/L (average reported on From 2F)	4.0 mg/L (daily minimum standard)	NA	Yes (In the case of DO, a value greater than the screening value is good)	NA

*Parameters with a screening value marked "NA" do not have an acute water quality standard on which to base the screening criteria.

Based on the data presented in Table 2, fecal coliform is the only parameter that exceeds the applicable screening value. From December 2010 through December 2014, the maximum fecal coliform reported on the DMR was 1600 N/cmL. The remainder of the data is all well above the screening value of 28 N/cmL with a count of 1,600 N/cmL being reported on multiple occasions. High fecal coliform counts in the stormwater discharge appear to be a consistent problem at this outfall. This is of particular concern as Tyson discharges to a stream that has been listed for bacteria impairment and Tyson was given an

E. coli wasteload allocation in the Chickahominy River and Tributaries Bacterial TMDL (approved by the State Water Control Board on 3/25/2013 and EPA on 9/19/2012). Although the wasteload allocation applies to the process water discharge (Outfall 001), thought should be given to the high bacteria counts found in the stormwater discharge and the ways in which it may be reduced.

The monitoring of fecal coliform in the stormwater was included in the 1999 and 2005 permit based on permit writer judgment because of the FELG for the process water discharge which requires bacteria (in the form of fecal coliform) monitoring. The state water quality standard of 14 N/cmL fecal coliform is applicable in open ocean and estuarine waters capable of propagating shellfish. It is not applicable to freshwater which both Outfalls 002 and 001 discharge to. An *E. coli* bacteria standard of 126 N/cmL applies in freshwater. Given the applicable state water standard for the freshwater receiving stream, the stormwater bacteria monitoring for Outfall 002 in the 2016 permit will be in the form of *E. coli*. This will better allow DEQ to determine whether the stormwater discharge from the facility is in excess of the water quality standard and may be causing or contributing to the impairment in the receiving stream and Chickahominy River. Based on the information provided in the Stormwater Flow Evaluation Report dated June 10, 2015 (**Attachment J**), there is potential for bacteria contributions to stormwater from the facility operations. Therefore, a reduced monitoring frequency of 1 every 6 months will be assigned in recognition of minimal potential for contact. If bacteria concentrations in excess of the benchmark are measured, the SWPPP will need to be updated to address source isolation sampling and existing BMPs in place to minimize potential for contact with the industrial operation.

A stormwater management evaluation for bacteria is also required (refer to Part. I.B.1 of the permit).

TKN monitoring has historically been monitored at Outfall 002 based on best professional judgment. For this reissuance TN monitoring is deemed more relevant given the TN load allocation that is allocated to the facility and enforced via the General Permit (9VAC 25-820). TN is also addressed by the FELG for this facility's process water. TKN monitoring is no longer required and is removed in lieu of TN monitoring.

Outfall 003:

Because Outfall 003 is a new outfall being added to the 2016 permit, no information on the stormwater discharged at this location is available. Based on the information provided in **Attachment J,** the monitoring requirements for Outfall 002 as listed in Table 3 below appear to be appropriate for the discharge at Outfall 003. However, in order to fully characterize the discharge from drainage area 1, BMP4 and BMP-14, a special condition to fulfill Form 2F requirements is added to the 2016 permit.

Nutrient Monitoring for Nonsignificant Nutrient Dischargers – Outfalls 002 and 003:

In accordance with GM14-2011, individual VPDES permits for industrial stormwater should include semi-annual nutrient monitoring for the first two years of the permit for a total of four samples. The purpose of this monitoring is to establish standard nutrient monitoring conditions in individual VPDES permits in order to develop data necessary to reevaluate the Virginia point source wasteload allocations (WLAs) included in the Chesapeake Bay TMDL.

Table 3. Basis for effluent Limitations: Outfall 002 and 003- Stormwater

EFFLUENT CHARACTERISTICS	BASIS	DISCHARGE LIMITS			MONITORING REQUIREMENTS	
		MONTHLY AVERAGE	DAILY MIN	DAILY MAX	FREQUENCY	SAMPLE TYPE
001 Flow (MG)	NA	NA	NA	NL	1 per 6 Months	Estimate
002 pH (Standard Units)	1	NA	NL	NL	1 per 6 Months	Grab
003 BOD_5 (mg/L)	2, 3	NA	NA	NL	1 per 6 Months	Grab
004 Total Suspended Solids (mg/L)	2, 3, 4	NA	NA	NL	1 per 6 Months	Grab

120 *E. coli* (MPN/100 mL)	1	NA	NA	NL	1 per 6 Months	Grab
012 Total Phosphorus (mg/L)	3, 4	NA	NA	NL	1 per 6 Months	Grab
039 Ammonia Nitrogen (mg/L)	2, 3	NA	NA	NL	1 per 6 Months	Grab
013 Total Nitrogen (mg/L)	2, 4	NA	NA	NL	1 per 6 Months	Grab
500 Oil & Grease (mg/L)	2	NA	NA	NL	1 per 6 Months	Grab

(1) Permit writer judgment based on Water Quality Standards
(2) Permit writer judgment based on parameters that are addressed in the Federal Effluent Guidelines for the industry 40 CFR 423.112 (Subpart K- Poultry First Processing)
(3) Permit writer judgment based on the Chickahominy Special Standards (9VAC25-260-310 m) and Nutrient Regulations
(4) Permit Writer Judgment - Nonsignificant dischargers are subject to aggregate wasteload allocations for Total Nitrogen (TN), Total Phosphorus (TP) and Sediments under the Total Maximum Daily Load (TMDL) for Chesapeake Bay as per GM14-2011.

17. Antibacksliding Statement: All limits are at least as stringent as the 2005 permit limitations.

18. Compliance Schedules: The 2016 permit includes new limitations for chronic toxicity (*C. dubia*). A four year schedule of compliance is afforded for the permittee to meet this limitation. Refer to Part I.D. of the permit. See **Attachment H** for the Whole Effluent Toxicity evaluation.

19. Special Conditions:

Part I.B.1. Stormwater Management Evaluation;
Part I.B.2. General Stormwater Conditions;
Part I.B.3. Stormwater Pollution Prevention Plan; and
Part I.B.4. Sector Specific SWPPP Requirements

Rationale: VPDES Permit Regulation, 9 VAC 25-31-10 defines discharges of stormwater from industrial activity. 9 VAC 25-31-120 requires a permit for these discharges. The General Stormwater Special Conditions, Stormwater Pollution Prevention Plan requirements, and Benchmark Monitoring requirements of the permit are derived from the VPDES general permit for discharges of stormwater associated with industrial activity (VAR05), 9 VAC 25-151-10 et seq. VPDES Permit Regulation, 9 VAC 25-31-220 K, requires use of best management practices where applicable to control or abate the discharge of pollutants when numerical effluent limits are infeasible or the practices are necessary to achieve effluent limits or to carry out the purpose and intent of the Clean Water Act and State Water Control Law. General stormwater requirements, SWPPP requirements, and monitoring requirements have been included in accordance with the GM14-2003 Permit Manual, Section IN-4 and in accordance with the VAR05 Industrial Stormwater General Permit (9VAC25-151-10 et seq.).

Part I.B.5 **Facilities in the Chesapeake Bay Watershed**

Rationale: Nonsignificant dischargers are subject to aggregate wasteload allocations for Total Nitrogen (TN), Total Phosphorous (TP) and Sediments under the Total Maximum Daily Load (TMDL) for Chesapeake Bay.

Part I.B.6 **Discharges Through a Regulated MS4 to Waters Subject to the Chesapeake Bay TMDL**

Rationale: VPDES Permit Regulation, 9 VAC 25-31-10 defines discharges of stormwater from industrial activity. 9 VAC 25-31-120 requires a permit for these discharges. The Discharges Through a Regulated MS4 to Waters Subject to the Chesapeake Bay TMDL requirements of the permit are derived from the VPDES general permit for discharges of stormwater associated with industrial activity (VAR05), 9 VAC 25-151-10 et seq.

Part I.B.7 **Expansion of Facilities That Discharge to Waters Subject to the Chesapeake Bay TMDL**

Rationale: VPDES Permit Regulation, 9 VAC 25-31-10 defines discharges of stormwater from industrial activity. 9 VAC 25-31-120 requires a permit for these discharges. The Expansion of Facilities That Discharge to Waters Subject to the Chesapeake Bay TMDL requirements of the permit are derived from the VPDES general permit for discharges of stormwater associated with industrial activity (VAR05), 9 VAC 25-151-10 et seq.

Part I.B.8 **Sampling to Fulfill Form 2F Requirements**

Rationale: In some cases, applicants may not have been able to comply with the Form 2F stormwater sampling requirements due to the lack of a representative storm event. This special condition requires the permittee to sample and submit data from a storm event to fulfill the requirements of Form 2F.

Part I.C.1 **O&M Manual Requirement**

Rationale: Required by Code of Virginia § 62.1-44.16; VPDES Permit Regulation, 9 VAC 25-31-190 E, and 40 CFR 122.41(e). These require proper operation and maintenance of the permitted facility. Compliance with an approved O&M manual ensures this.

Part I.C.2 **Materials Handling and Storage**

Rationale: 9 VAC 25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia § 62.1-44.16 and 62.1-44.17 authorizes the Board to regulate the discharge of industrial waste or other waste.

Part I.C.3 **Licensed Operator Requirement**

Rationale: The VPDES Permit Regulation, 9VAC25-31-200 C and the Code of Virginia § 54.1-2300 et seq, Rules and Regulations for Waterworks and Wastewater Works Operators and Onsite Sewage System Professionals Regulations (18VAC160-20-10 et seq.), require licensure of operators.

Part I.C.4 **Reopeners**

Rationale: Section 303(d) of the Clean Water Act requires that total maximum daily loads (TMDLs) be developed for streams listed as impaired. This special condition is to allow the permit to be reopened if necessary to bring it into compliance with any applicable TMDL approved for the receiving stream. The re-opener recognizes that, according to section 402(o)(1) of the Clean Water Act, limits and/or conditions may be either more or less stringent than those contained in this permit. Specifically, they can be relaxed if they are the result of a TMDL, basin plan, or other wasteload allocation prepared under section 303 of the Act.

9 VAC 25-40-70A authorizes DEQ to include technology-based annual concentration limits in the permits of facilities that have installed nutrient control equipment, whether by new construction, expansion or upgrade.

9 VAC 25-31-390 A authorizes DEQ to modify VPDES permits to promulgate amended water quality standards.

Part I.C.5 **Water Quality Criteria Reopener**

Rationale: VPDES Permit Regulation, 9VAC25-31-220D requires effluent limitations to be established which will contribute to the attainment or maintenance of water quality criteria.

Part I.C.6 **Notification Levels**

Rationale: Required by VPDES Permit Regulation, 9 VAC 25-31-200 A for all manufacturing, commercial, mining, and silvicultural dischargers.

Part I.C.7 **Compliance Reporting**

Rationale: Authorized by VPDES Permit Regulation, 9 VAC 25-31-190 J 4 and 220 I. This condition is necessary when pollutants are monitored by the permittee and a maximum level of quantification and/or a specific analytical method is required in order to assess compliance with a permit limit or to compare effluent quality with a numeric criterion. The condition also establishes protocols for calculation of reported values.

Quantitation levels are as specified in Guidance Memorandum GM14-2003. The Total Recoverable Zinc QL is derived from the Site Specific Target Value (SSTV) calculated in MSTRANTI based on effluent and receiving stream conditions at the time of reissuance. Total Recoverable Zinc concentrations below the SSTV are not expected to be present in concentrations that will generate the need for a water quality limitation.

Part I.C.8 **Groundwater Monitoring**

Rationale: 9VAC25-280-20. Except where otherwise specified, groundwater quality standards shall apply statewide and shall apply to all groundwater occurring at and below the uppermost seasonal limits of the water table. In order to prevent the entry of pollutants into groundwater occurring in any aquifer, a soil zone or alternate protective measure or device sufficient to preserve and protect present and anticipated uses of groundwater shall be maintained at all times. 9VAC25-280-60 Groundwater criteria, although not mandatory, also provide guidance in preventing groundwater pollution. Also, State Water Control Law 62.1-44.21 authorizes the Board to request information needed to determinate the discharge's impact on State waters. Groundwater monitoring for parameters of concern will indicate whether possible lagoon/pond seepage is resulting in violations to the State Water Control Board's Groundwater Standards.

A revised groundwater monitoring plan is required as part of the 2016 permit. During the course of the groundwater monitoring evaluation it was noted that certain parameters currently being monitored are consistently well below the applicable standard and are not present in statically significantly higher concentrations at the down-gradient wells as compared to the up-gradient well. The most recent action with regard to groundwater at this site was a 1992 approval of the Lagoon Closure Plan which required continued monitoring following the closure of the wastewater lagoons until natural attenuation has occurred. Groundwater monitoring may not be discontinued altogether, because certain parameters are present in the down-gradient wells at levels above the standard and contamination is apparent. However, given the groundwater monitoring plan is over 20 years old and some parameters appear to have attenuated, a revised groundwater plan designed for the current groundwater conditions is deemed suitable for the 2016 reissuance.

Part I.C.9 **Closure Plan**

Rationale: This condition establishes the requirement to submit a closure plan for the treatment works if the treatment facility is being replaced or is expected to close. This is necessary to ensure industrial sites and treatment works are properly closed so that the risk of untreated waste water discharge, spills, leaks and exposure to raw materials is eliminated and water quality maintained. Section 62.1-44.21 requires every owner to furnish when requested plans, specification, and other pertinent information as may be necessary to determine the effect of the wastes from his discharge on the quality of state waters, or such other information as may be necessary to accomplish the purposes of the State Water Control Law.

Part I.C.10 **Industrial Concept Engineering Report (CER)**

Rationale: §62.1-44.16 of the Code of Virginia requires industrial facilities to obtain DEQ approval for proposed discharges of industrial wastewater. A CER means a document setting forth preliminary concepts or basic information for the design of industrial wastewater treatment facilities and the supporting calculations for sizing the treatment operations.

Part I.C.11 **Nutrient Reporting Calculations**
Rationale: §62.1-44.19:13 of the Code of Virginia defines how annual nutrient loads are to be calculated; this is carried forward in 9 VAC 25-820-70. As annual concentrations (as opposed to loads) are limited in the individual permit, this special condition is intended to reconcile the reporting calculations between the permit programs, as the permittee is collecting a single set of samples for the purpose of ascertaining compliance with two permits.

Part I.C.12 **Suspension of Concentration Limits for E3/E4 Facilities**
Rationale: 9 VAC 25-40-70 B authorizes DEQ to approve an alternate compliance method to the technology-based effluent concentration limitations as required by subsection A of this section. Such alternate compliance method shall be incorporated into the permit of an Exemplary Environmental Enterprise (E3) facility or an Extraordinary Environmental Enterprise (E4) facility to allow the suspension of applicable technology based effluent concentration limitations during the period the E3 or E4 facility has a fully implemented environmental management system that includes operation of installed nutrient removal technologies at the treatment efficiency levels for which they were designed.

Part I.C.13 **Effluent Monitoring Frequency**
Rationale: Permittees are granted a reduction in monitoring frequency based on a history of permit compliance. To remain eligible for the reduction, the permittee should not have violations related to the effluent limits for which reduced frequencies were granted. If permittees fail to maintain the previous level of performance, the baseline monitoring frequencies should be reinstated for those parameters that were previously granted a monitoring frequency.

Part I.C.14 **Additional Chlorine Limitations and Monitoring Requirements**
Rationale: Required by Sewage Collection and Treatment Regulations 9VAC25-790 and Water Quality Standards 9VAC25-260-170, Bacteria; Recreational Waters. Also, 40 CFR 122.41(e) requires the permittee, at all times, to properly operate and maintain all facilities and systems of treatment in order to comply with the permit. This ensures proper operation of chlorination equipment to maintain adequate disinfection.

Part I.D. **Schedule of Compliance for Chronic Whole Effluent Toxicity**
Rationale: 9VAC 25-31-250 allows for schedules of compliance, when appropriate, which will lead to compliance with the Clean Water Act, the State Water Control Law and regulations promulgated under them.

Part I.E. **Whole Effluent Toxicity (WET) Limitation Requirements**
Part I.F. **Whole Effluent Toxicity (WET) Monitoring Requirements**
Rationale: VPDES Permit Regulation, 9 VAC 25-31-210 and 220 I, requires monitoring in the permit to provide for and assure compliance with all applicable requirements of the State Water Control Law and the Clean Water Act.

Refer to **Attachment H** for the Whole Effluent Toxicity Evaluation.

Part II **Conditions Applicable to All Permits**
Rationale: VPDES Permit Regulation, 9 VAC 25-31-190 requires all VPDES permits to contain or specifically cite the conditions listed.

20. NPDES Permit Rating Work Sheet: Total Score: 55 See **Attachment I**

21. Changes to Permit:

Note: "---" indicates no change from 2005 permit
"xx" indicates that this parameter/item was not included in the 2005 permit

Changes to Cover Page	
Changes	**Reason**
Format	Wording updated to reflect current agency guidance. CITY/COUNTY changed to COUNTY only.
Facility	Facility name updated per application. Per the application deficiency letter, the facility submitted a multimedia update form and the name change was made in CEDS on 20 September 2013.

Changes to Part I.A.1	
Changes	**Reason**
Format	Wording updated to reflect current agency guidance.

Outfall 001:

Changes	**Effluent Limits**		**Monitoring Requirements**		**Reason**
	From	**To**	**From**	**To**	
001 Flow (MGD)	---	---	---	---	No change
002 pH (SU)	---	---	---	---	No change
003 BOD_5	28.4 kg/d monthly average	28 kg/d monthly average 38 kg/d daily max	1/Week	1 per Month	Load revised to two significant figures to match the two significant figures of the concentration limit. The concentration limit is stipulated by 9VAC25-260-310m. Daily max load limits added per standard procedure. Load limits are calculated using the existing daily max concentration limit.
004 TSS	23.7 kg/d monthly average	24 kg/d monthly average 35 kg/d daily max	1/Week	1 per week	Load revised to two significant figures to match the two significant figures of the concentration limit. The concentration limit is stipulated by 9VAC25-260-310m. Daily max load limits added per standard procedure. Load limits are calculated using the existing daily max concentration limit.
005 TRC (µg/L)	7.97 µg/L monthly average 16.09 µg/L daily max	Limitation removed	1/Day	Limitation removed	In 2010 the facility terminated the use of chlorine for disinfection and began using UV disinfection. Since chlorine is no longer introduced into the waste water and it is believed absent, a TRC limit is no longer required. Antibacksliding does not prevent the removal of the limit because material and substantial alterations were made to the treatment work to change the disinfection method. TRC limitations are included in Part I.C.14 of the permit but are only activated if chlorination is used as an alternative to UV disinfection. Refer to Fact Sheet Item 16 for further details.

006 Fecal coliform (MPN/100mL)	---	---	1/Month	1 per 6 Months	Units updated from (#/100mL) to (MPN/100mL). Monitoring frequency reduced in accordance with Monitoring Frequency Reduction Analysis.
007 Dissolved Oxygen (mg/L)	---	---	1/Day	3 per Week	Monitoring frequency reduced on a Permit Writer Judgment basis and in accordance with Monitoring Frequency Reduction Analysis.
120 *E. coli* (MPN/100mL)	---	---	1/Week	1 per Week	Units updated from (#/100mL) to (MPN/100mL). Monitoring frequency updated in accordance with VPDES Permit Manual Section IN-2, Bacteria limits for alternate disinfection (ultraviolet).
012 Total Phosphorus (mg/L)	0.3 monthly average 0.5 daily max/ 1.4 kg/d monthly average 2.4 kg/d daily max	0.30 monthly average 0.50 daily max/ Loads removed	1/Week	1 per 3 Months	Concentration limitations updated to two significant figures to match 9VAC25-260-310 m. Chickahominy special standard. Load limits removed due to General Permit (9VAC 25-820) control in accordance with GM 07-2008 Amendment 2. Monitoring frequency reduced in accordance with Monitoring Frequency Reduction Analysis and GM14-2003.
794 TP (calendar year average)	185 kg/yr	0.1 mg/L monthly average 185 kg/yr	1/Month	1 per Year	Calendar year average concentration limitation added per GM 07-2008 Amendment 2 based on installed nutrient removal technology.
793 TP (kg/month)	NL kg/d daily max	Monitoring removed	1/Month	Monitoring removed	Parameter no longer needed. TP load limitations and monitoring requirements are accounted for in parameter 794 and 806.
806 TP (year-to-date)	NL kg/d daily max	NL kg/d daily max NL mg/L monthly average	---	---	Concentration monitoring inserted (in addition to continued load monitoring) per GM 07-2008 Amendment 2.
013 Total Nitrogen	103 mg/L, 487 kg/d monthly average 147 mg/L, 695 kg/d daily max	Limitations removed	2/Month	Limitations removed	The technology-based concentration limit applied as a calendar year average is considered protective of the FELG. TN load are now controlled by the General Permit (9VAC 25-820) in accordance with GM 07-2008 Amendment 2
039 Ammonia – N	37.9 kg/d daily max	38 kg/d daily max	---	---	Load revised to two significant figures to match the two significant figures of the concentration limit, stipulated by the FELG (40 CRF 423.112)

068 TKN	NL	Monitoring removed	2/Month	Monitoring removed	Monitoring requirement removed per GM07-2008 Amendment 2. Nutrient Enriched Waters (NEW) policy no longer applies and GM 05-2009 is superseded by GM07-2008 Amendment 2.
792 TN (calendar year average)	NL kg/D daily max	6.0 mg/L monthly average	---	---	Load monitoring removed due to General Permit (9VAC 25-820) control in accordance with GM 07-2008 Amendment 2.Technology-based concentration limit inserted per GM 07-2008 Amendment 2.
805 TN (year-to-date)	NL kg/d daily max	NL mg/L monthly average	1/Month	1 per Month	Load monitoring removed due to General Permit (9VAC 25-820) control in accordance with GM 07-2008 Amendment 2. Concentration monitoring inserted per GM 07-2008 Amendment 2.
389 Nitrate plus Nitrite	NL mg/l NL kg/d monthly average	Monitoring removed	2/Month	Monitoring removed	Monitoring requirement removed per GM07-2008 Amendment 2. Nutrient Enriched Waters (NEW) policy no longer applies and GM 05-2009 is superseded by GM07-2008 Amendment 2.
791 TN (kg/month)	NL kg/d daily max	Monitoring removed	1/Month	Monitoring removed	Load monitoring removed due to General Permit (9VAC 25-820) control in accordance with GM 07-2008 Amendment 2.
071 Settleable solids	---	---	1/Week	1 per Month	Monitoring frequency reduced on a PWJ basis due to all results of the last three years being <QL.
196 Zinc, total recoverable	190 ug/L	0.19 mg/L	1/Month	1 per 6 Months	Monitoring frequency reduced in accordance with Monitoring Frequency Reduction Analysis. Limit expressed in mg/L as requested by permittee for consistency with the other permit limits.
795 Orthophosphate	NL mg/l NL kg/d monthly average	Monitoring removed	2/Month	Monitoring removed	Monitoring requirement removed per GM07-2008 Amendment 2. Nutrient Enriched Waters (NEW) policy no longer applies and GM 05-2009 is superseded by GM07-2008 Amendment 2.
801 Oil & Grease	37.8 kg/d monthly average 66.2 kg/d daily max	38 kg/d monthly average 66 kg/d daily max	1/Week	1 per 2 Months	Load revised to two significant figures to match the two significant figures of the concentration limit, stipulated by the FELG (40 CRF 423.112). Monitoring frequency reduced in accordance with Monitoring Frequency Reduction Analysis and GM14-2003.
145 Chlorides (mg/L)	xx	NL monthly average NL daily max	xx	1 per Month	Permit Writer Judgment. Monthly monitoring will be required over the course of the permit term and reasonable potential will be evaluated at the next reissuance.

720 Toxicity, Chronic *C. dubia* (Interim)	xx	NL (TU_c) daily max	xx	1 per 3 Months	Best professional judgment. Monitoring required prior to concentration limit becoming effective per the Schedule of Compliance (Part I.D.)
720 Toxicity, Chronic *C. dubia* (Final)	xx	1.12 (TU_c) daily max	xx	1 per 3 Months	Water quality based limit based on a reasonable potential analysis. See Attachment H for detailed evaluation.

Other Changes to Notes in Part I.A

NL footnote wording update.
NA footnote wording update.
24 HC footnote wording update.
8HC footnote removed. No longer needed.
HEM footnote wording update.
1 per 3 Months and 1 per Year definitions added.

Footnote (2) TRC- updated to reflect the relocating of the TRC limit to Par I.C.14 Additional TRC Limitations and monitoring Requirement special condition.
Footnote (3) Citation for Schedule of Compliance updated to Part I.D.
Footnote (4) Special condition citations for Nutrient Reporting Requirements updated to Part I.C.11 and 12.
Footnote (6) Updated to cite Part I.F Whole Effluent Toxicity monitoring special condition. Two per month definition no longer applicable.
Footnote (7) Updated to cite Part I.E Whole Effluent Toxicity limit requirements special condition.
Footnote (9) Added per GM 07-2008 Amendment 2.
Footnote (10) Added to address significant figures per GM06-2016.

Note: "---" indicates no change from 2005 permit
xx" indicates that this parameter/item was not included in the 2005 permit

Changes to Part I.A.2	
Changes	**Reason**
Added Outfall 003	Outfall 003 is added to the 2016 Permit to capture stormwater from BMP-14, BMP-4 and drainage area 1.

Changes	**Effluent Limits**		**Monitoring Requirements**		**Reason**
	From	**To**	**From**	**To**	
001 Flow (MGD)	---	---	---	---	No change
002 pH (SU)	---	---	---	---	No change
003 BOD_5 (mg/L)	---	---	---	---	No change
004 TSS (mg/L)	---	---	---	---	No change
006 Fecal coliform (MPN/100mL)	NL daily max	Monitoring removed	1/6Month	Monitoring removed	Fecal coliform monitoring was removed using Best professional Judgment. *E. coli* was deemed a more appropriate parameter to monitor because the standard for the receiving stream is in terms of *E. coli*. In addition the bacteria TMDL for the receiving stream is for *E. coli*.
120 *E. coli* (MPN/100mL)	xx	NL daily max	xx	1 per 6 Months	See above for rationale for inserting *E. coli* monitoring. Also see fact sheet part 16 for greater explanation. Monitoring frequency for bacteria is set at 1 per 6 Months on a PWJ basis.

012 Total Phosphorus (mg/L)	---	---	---	---	No change
039 Ammonia Nitrogen (mg/L)	---	---	---	---	No change
068 TKN (mg/L)	NL daily max	Monitoring removed	1/6Month	Monitoring removed	TKN monitoring has historically been included based on best professional Judgment. For this reissuance TN monitoring is deemed more relevant given the TN load allocation that is allocated to the facility and enforced via the General Permit (9VAC 25-820). TKN monitoring is no longer deemed necessary and is removed in lieu of TN monitoring.
013 Total Nitrogen (mg/L)	xx	NL daily max	xx	1 per 6 Months	See above rational for inserting TN based on Best Professional Judgment. Also see fact sheet part 16 for greater explanation.
500 Oil and Grease	---	---	---	---	No change

Other Changes to Notes in Part I.A.2

Footnote changes to Part I.A.2.a
NL footnote wording update.
NA footnote wording update.
Estimate footnote added to provide definition.
1 per 6 Months definition added.
1 per Quarter definition added.

Part I.A.2.c. Footnote updated up cite Part I.B. for additional requirements.
Part I.A.2.d. Wording updates and Outfall 003 added.
Part I.A.2.e. Footnote added per VPDES Permit Manual section IN-4

* footnote removed. Definition of estimate provided in Part I.A.2.a.
** footnote removed as it is no longer a requirement per current agency guidance (GM 10-2003 VPDES Permit Manual section IN-4)

Changes to Conditions:

From	To	Rationale
Part I.B. General Stormwater Management	Part I.B.2 General Stormwater Special Conditions	Section renumbered due to addition of Stormwater Management Evaluation (Part I.B.1 in 2014 permit). Language updates per GM 14-2003 VPDES Permit Manual and the 2014 VPDES Industrial Stormwater General Permit Regulation (9VAC- 25-151). Added stormwater 003 to Sampling Methodology paragraph.
Part I.B.1 Sample Type	Part I.B.1 Stormwater Management Evaluation	Stormwater management evaluation added per GM 14-2003 VPDES Permit Manual due to historically high bacteria counts in the stormwater. See also Fact Sheet section 16 for further discussion and rationale.
Part I.C. SWPPP	Part I.B.3 SWPPP	Section renumbered and language updated per GM 14-2003 VPDES Permit Manual.

Part I.C.6 Sector-Specific SWPPP Requirements	Part I.B.4 Sector-Specific SWPPP Requirements	Section renumbered and language updated per GM 14-2003 VPDES Permit Manual.
xx	Part I.B.5	Special condition added in accordance with GM 14-2011. Revised to only include nutrients calculations and evaluation.
xx	Part I.B.6	Special condition added in accordance with the ISWGP, 9VAC25-151-10 et seq.
xx	Part I.B.7	Special condition added in accordance with the ISWGP, 9VAC25-151-10 et seq.
xx	Part I.B.8	Special condition added to request submittal of form 2F for new Outfall 003, in accordance with GM 14-2003 VPDES Permit Manual.
Part I.D.1. O & M Manual Requirement	Part I.C.1 O & M Manual Requirement	Section renumbered and language updated per GM 14-2003 VPDES Permit Manual.
Part I.D.2. Materials Handling/Storage	Part I.C.2 Material Handling and Storage	Section renumbered and language updated per GM 14-2003 VPDES Permit Manual.
Part I.D.3. Licensed Operator Requirement	Part I.C.3. Licensed Operator Requirement	Section renumbered and language updated per GM 14-2003 VPDES Permit Manual
Part I.D.4. Nutrient Enriched Waters/ Chesapeake Bay Nutrients Reopener	Part I.C.4. Reopeners	Reopeners added and language updated per GM 07-2008 Amendment 2.
Part I.D.5 Water Quality Criteria Reopener	Part I.C.5 Water Quality Criteria Reopener	Section renumbered
Part I.D.6 Notification Levels	Part I.C.6 Notification Levels	Section renumbered and language updated per GM 14-2003 VPDES Permit Manual.
Part I.D.7 Compliance Reporting under Part I.A.	Part I.C.7 Compliance Reporting	Section renumbered and language updated per GM 14-2003 VPDES Permit Manual.
Part I.D.8 Groundwater Monitoring	Part I.C.8 Groundwater Monitoring	Section renumbered and wording updated per GM 14-2003 to reflect requirement to submit a new Groundwater Monitoring Plan upon permit reissuance. See also **Attachment G** for Groundwater Evaluation and further discussion.
Part I.D.9 TMDL Reopener	Part I.C.9 Closure Plan	TMDL reopener bundled under Reopeners special condition (Part I.C.4 in 2014 permit). Closure plan added per GM14-2003 VDPES Permit Manual.
Part I.D.10 General Permit Controls	Part I.C.10 Industrial Concept Engineering Report (CER)	General Permit Controls special condition no longer applicable (the facility is covered under the general permit VAN040089). CER special condition added per GM 14-2003 VPDES Permit Manual.
Part I.D.11. Nutrient Reporting Calculations	Part I.C.11. Nutrient Reporting Calculations	Section renumbered and language updated per GM 14-2003 VPDES Permit Manual and GM 07-2008 Amendment 2.
Part I.D.12 Basis of Design Report for Nutrient Removal	Part I.C.12 Suspension of Concentration Limits for E3/E4 Facilities	Basis of Design Report for Nutrient Removal special condition no longer applicable. Suspension of Concentration Limits for E3/E4 Facilities added per GM 14-2003 VPDES Permit Manual.
Part I.D.13 Interim Optimization Plan for Nutrient Removal	---	Interim Optimization Plan for Nutrient Removal special condition no longer applicable.
xx	Part I.C.13	Added per GM 14-2003; required when a permittee is granted monitoring frequency reductions based on performance.

xx	Part I.C.14 Additional Chlorine Limitations and Monitoring Requirements	Added per GM 14-2003 VPDES Permit Manual. A TRC special condition is included to allow for emergency needs for chlorine disinfection. The condition has been revised to remove the TRC residual requirements within the contact tank.
Part I.D.14 Schedule of Compliance for *E. coli* and Zinc Limits	Part I.D Schedule of Compliance for Whole Effluent Toxicity	Section renumbered and updated to reflect compliance schedules for limits new to the 2014 permit. Language updates per GM 14-2003 VPDES Permit Manual.
Part I.E. WET Testing	Part I.E. WET Limitation Requirements	Section updated to reflect new WET limitations per the WET Evaluation and reasonable potential analysis (see **Attachment H**). Language approved 12/10/2010 by Central Office (D. DeBiasi).
xx	Part I.F. WET Monitoring Requirements	Section added to reflect new WET limitations and monitoring requirements per the WET Evaluation and reasonable potential analysis (see **Attachment H**). Language approved 12/10/2010 and 10/23/2015 by Central Office (D. DeBiasi).
Part II Conditions Applicable to all VPDES Permits	Part II Conditions Applicable to all VPDES Permits	Section updated per GM 14-2003 VPDES Permit Manual.

"xx" indicates that this special condition was not included in the 2005 permit
"---" indicates that this special condition was deleted in the 2016 permit

22. Variances/Alternate Limits or Conditions: None

23. Public Notice Information required by 9 VAC 25-31-280 B:
Publication Dates: November 25 and December 2, 2015
Comment period: Start Date: November 25, 2015 End Date: December 28, 2015
Publication in: Richmond Times Dispatch

All pertinent information is on file and may be inspected, and copied by contacting Laura Galli at:

VDEQ – Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060
Telephone No. (804) 527-5095
E-mail address: laura.galli@deq.virginia.gov

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may review the draft permit and application at the DEQ Piedmont Regional Office by appointment.

24. Additional Comments:

Previous Board Action: The facility was issued a Special Order by Consent on March 16, 2006. The Consent Order resulted from a series of issues that occurred in August 2005 including fish kills, failure of the dissolved air flotation unit, low dissolved oxygen (less than 1.0 mg/L) in the receiving stream and numerous effluent limit violations on the August 2005 DMR (BOD_5, TSS, TP, and ammonia-N). A Notice of Violation (NOV) was issued on November 5, 2005 citing the two fish kills and effluent violations. As a result of the Consent Order the 2005 permit was modified in 2006 to increase monitoring of BOD_5, TSS, TP, and ammonia-N from once per week to three times per week. The Order has since been closed.

The facility was issued another Special Order by Consent on August 24, 2009. The Consent Order resulted from a fish kill reported on December 4, 2008 in an unnamed tributary downstream of the plant. The fish kill was determined to be caused by a dissolved oxygen sag that resulted from the overdosing of sodium biosulphate during dechlorination. The overdosing resulted in the effluent having an elevated chemical oxygen demand. A NOV was issued for the fish kill on March 13, 2009. As part of the Consent Order the facility agreed to a Supplemental Environmental Project (SEP). Ultimately the stormwater bioretention basin was installed as part of the SEP (refer to Fact Sheet Item 9 for more details). As of May 2014 the Order is still active.

Reduced Monitoring: Per section IN-2 of the VPDES Permit Manual (GM 14-2003), the facility is eligible for monitoring reductions based on actual performance because the facility did not receive Warning Letters within the last three years. See **Attachment L** for monitoring reductions calculations and rationales.

VDH comments: VDH provided the following comment by memorandum dated October 1, 2015: "There are no public water supply intakes within a 1-mile radius from the discharge."

Other Agency Comments: None

Fees: Annual maintenance fees are up to date and were deposited on September 17, 2015.

E-DMR Participation: This permittee has been enrolled in E-DMR since 5/8/2007.

Virginia Environmental Excellence Program (VEEP): The facility is not enrolled in VEEP.

Controversial Project / Permit: No

EPA Comments: EPA was provided a copy of the draft permit modification and fact sheet addendum for review on October 28, 2015. In an email dated November 23, 2015, EPA responded that there were no comments concerning the adherence to the impaired waters requirements.

Owner Comments: The owner provided comments on the draft permit during a meeting with DEQ on October 1, 2014. Comments were provided in writing on April 22, 2015 (see **Attachment M**). DEQ provided a response to comments letter on June 29, 2015 (**Attachment M**).

Public Comment: The Director of Hanover County Public Utilities requested a copy of the draft permit via email on December 3, 2015. No comments were received.

Locality Notification: In accordance §62.1-44.15:01.A.2, 9 VAC25-31-290.G.2 and GM11-2005, the County of Hanover (Board of Supervisors Chair and County Administrator) and the Richmond Regional Planning District Commission were notified of the public comment period and sent the legal notice for the draft permit in a letter dated November 23, 2015.

Planning Conformance Statement: Per a memo dated 5/29/2014, Water Resources Planning staff certified that the discharge is in conformance with the existing planning documents for the area.

25. 303(d) Listed Segments (TMDL):

Per the 2012 305(b)/303(d) Water Quality Assessment, the tributary below Tyson is considered a Category 5D water ("The Water Quality Standard is not attained where TMDLs for a pollutant(s) have been developed but one or more pollutants are still causing impairment requiring additional TMDL development.") The applicable fact sheets are included in **Attachment A**. The stream was considered impaired of the Aquatic Life Use due to ammonia and pH exceedances, an impaired benthic community, and low dissolved oxygen. The Wildlife Use was impaired due to the ammonia exceedances, the Fish Consumption Use was considered fully supporting with observed effects due to a VDH fish advisory for kepone, and the Recreation Use was not assessed.

In the draft 2014 Integrated Report, the stream is also considered Category 5A. The stream was considered impaired of the Aquatic Life Use due to ammonia and pH exceedances and an impaired benthic community. The Wildlife Use was impaired due to the ammonia exceedances. The Fish Consumption Use was considered fully supporting with observed effects due to a VDH fish advisory for kepone. The Recreation Use was not assessed.

Tyson was addressed in the report "Total Maximum Daily Load (TMDL) Development for the Unnamed Tributary to the Chickahominy River" which was approved by the EPA on 8/5/2004 and by the SWCB on 3/15/2005. The facility received a total phosphorus wasteload allocation of 409.35 lbs/year. The 2016 permit contains a yearly maximum load of 185 kg/year or 407 lbs/year. This limit is therefore protective of the 409.35 lbs/year load allocation designated in the TMDL (see Fact Sheet Item 16- Nutrients for further discussion).

The Chickahominy River and Tributaries Bacterial TMDL was approved by the EPA on 9/19/2012 and by the SWCB on 3/25/2013. Tyson received an *E. coli* wasteload allocation of 2.18E+12 cfu/year. The 2016 permit has a monthly average limitation of 126 MPN/100mL for *E. coli* that requires compliance with the standard prior to discharge; compliance with the limitation ensures compliance with the TMDL.

This facility discharges directly to an unnamed tributary of the Chickahominy River in the Chesapeake Bay watershed in the Chickahominy River estuary segment (CHKOH). The receiving stream has been addressed in the Chesapeake Bay TMDL, approved by EPA on December 29, 2010. The TMDL addresses dissolved oxygen (DO), chlorophyll a, and submerged aquatic vegetation (SAV) impairments in the main stem Chesapeake Bay and its tidal tributaries by establishing non-point source load allocations (LAs) and point-source waste load allocations (WLAs) for Total Nitrogen (TN), Total Phosphorus (TP) and Total Suspended Solids (TSS) to meet applicable Virginia Water Quality Standards contained in 9VAC25-260-185. This facility is considered a Significant Chesapeake Bay wastewater discharge. All Significant Chesapeake Bay wastewater discharges in the Chickahominy River estuary segment (CHKOH) have been assigned aggregate WLAs of 46,371 pounds per year TN, 19,822 pounds per year TP, and 939,747 pounds per year TSS.

Implementation of the Chesapeake Bay TDML is currently accomplished in accordance with the Commonwealth of Virginia's Phase I Watershed Implementation Plan (WIP), approved by EPA on December 29, 2010. The approved WIP recognizes that the TMDL nutrient WLAs for Significant Chesapeake Bay wastewater dischargers are set in two regulations: 1) the Water Quality Management Planning Regulation (9VAC25-720); and 2) the "General VPDES Watershed Permit Regulation for Total Nitrogen and Total Phosphorus Discharges and Nutrient Trading in the Chesapeake Bay Watershed of Virginia" (9VAC25-820). The WIP further outlines that since TSS discharges from wastewater facilities represent an insignificant portion of the Bay's total sediment load, they may be considered in the aggregate. The WIP also states that wastewater discharges with technology-based TSS limits are considered consistent with the TMDL.

40 CFR 122.44(d)(1)(vii)(B) requires permits to be written with effluent limits necessary to meet water quality standards and to be consistent with the assumptions and requirements of applicable WLAs. DEQ has provided coverage under the VPDES Nutrient General Permit (GP) for this facility under permit VAN40089. The requirements of the Nutrient GP currently in effect for this facility are consistent with the Chesapeake Bay TMDL. This individual permit includes TSS limits of 5.0 mg/L monthly average that are more stringent than the technology-based requirements and therefore consistent with

the Chesapeake Bay TMDL and WIP. In addition, the individual permit has limits of 6.0 mg/L monthly average BOD5, and 5.0 mg/L monthly average DO which provide protection of instream DO concentrations to at least 5.0 mg/L. However, implementation of the full Chesapeake Bay WIP, including GP reductions combined with actions proposed in other source sectors, is expected to adequately address ambient conditions such that the proposed effluent limits of this individual permit are consistent with the Chesapeake Bay TMDL, and will not cause an impairment or observed violation of the standards for DO, chlorophyll a, or SAV as required by 9VAC25-260-185.

26. Attachments:

Attachment A:	Flow Frequency Memo and Fact Sheets for 303(d) Waters
Attachment B:	Site Diagram and Location Map
Attachment C:	Site Inspection Report
Attachment D:	Applicable Federal Effluent Limitation Guidelines
Attachment E:	Facility Effluent Data Outfall 001 (Water Quality Criteria Monitoring and Application Data)
Attachment F:	MSTRANTI and Stats.exe
Attachment G:	Groundwater Evaluation
Attachment H:	Whole Effluent Toxicity Evaluation
Attachment I:	NPDES Industrial Permit Rating Work Sheet
Attachment J:	Stormwater Flow Evaluation Report and Drainage Maps
Attachment K:	Stormwater Data
Attachment L:	Monitoring Frequencies Reductions Calculations
Attachment M:	Owner Comments and DEQ Response to Comments